Department of LABOR AND INDUSTRIES

SHARP
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Lead hazards at indoor firing ranges

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Introduction

Most firing ranges in Washington State are relatively small operations, offering instruction and target practice to competitive and recreational shooters. Many cities and counties also run firing ranges for law enforcement officers.

Exposures to airborne and settled lead dust at firing ranges put employees, instructors and customers at risk for lead poisoning. "Take-home" exposure is especially dangerous to children ages six and younger, because lead is toxic to the brain and can cause permanent damage.

A quick overview of lead hazards at a firing range

Shooting a firearm using ammunition with lead-containing primers or unjacketed lead bullets generates lead dust and fumes. Shooters and anyone else spending time at the firing line are exposed to these dusts and fumes.

Workers are exposed to lead when they clean the range, clean firearms, empty the bullet traps, or sort brass.

- Dry sweeping indoor ranges can cause settled lead dust to become airborne.
- Cleaning the bullet traps by shoveling or pouring bullet debris into buckets can expose workers to high levels of airborne lead dust.
- Sorting spent brass can expose workers to airborne dust and contaminate their hands with lead.
- Firearm cleaning can contaminate worker's hands with lead mixed with cleaning oils. These oils can stick the lead to the skin, making it more difficult for workers to wash the lead off their hands.
- Secondary contamination may occur by handling equipment (e.g. equipment cases, shooting mats, or jackets) previously used or stored in areas containing lead contaminated dust.

Lead enters the body by two main pathways: inhalation (breathing lead contaminated air) or ingestion (eating lead through food or tobacco contaminated with lead).

Workers who eat, drink, or use tobacco without first washing their hands and face can take lead into their bodies.

Lead dust not only poses a health risk to employees, instructors and customers! Lead taken home on clothing and other contaminated materials can cause lead poisoning in children!

Preventing lead poisoning on the range

Reduce or eliminate the use of lead-containing ammunition.
Require the use of jacketed ammunition with non-lead primer to reduce the amount of airborne lead in the range. Following the use of lead-containing ammunition and before the use of jacketed ammunition, ensure that firearms are thoroughly cleaned to remove residual bore lead.

Control exposures with good ventilation.
An effective ventilation system can greatly reduce airborne lead exposures at the firing line. Air movement should carry the smoke and fume down range away from the shooter's face. Local regulations may require filtering of the exhausted air before releasing it outside. General building ventilation is not enough to move the lead-containing smoke away from the firing line. To eliminate the possibility of contaminating adjacent areas within the facility, firing range ventilation systems should be dedicated to the range and not tied into the general Heating, Ventilation, Air Conditioning (HVAC) system. General HVAC contractors may not have the expertise to design an effective firing range system. Be sure to contract with a ventilation consultant with a proven record of designing effective firing range ventilation systems.

Good housekeeping practices will reduce exposures.
Keep all areas of the range free from lead by regular cleaning. Surfaces should be cleaned using a High Efficiency Particle Arresting (HEPA) vacuum or a wet sweeping method. Dust accumulations should never be dry swept - this will re-suspend the lead dust in the air.

Care must be used when cleaning the bullet trap.
Lead dust is easily re-suspended in the air while scooping or sweeping the debris in the trap. Repeated misting with water using a garden sprayer will help to keep the dust down.

All employees should receive training on how to work safely around lead and lead dust.
Training makes employees aware of the hazards of lead and the steps they can take to protect themselves.

Properly fit-tested respirators should be worn during all cleaning operations.
Wearing a half-mask respirator with HEPA filters during range cleaning and a full-face respirator during the trap cleaning is recommended. Contact your local L&I Industrial Hygiene Consultant for respiratory protection program requirements.

Employees should wear protective clothing while cleaning the range or trap.
Disposable coveralls, head covering, and shoe covers are available for these jobs. Employees should not wear work clothing or shoes home. Lead dust can be carried home on shoes and clothing. This dust may contaminate the employees' car and home, exposing spouses and children to lead.

Prohibit eating, drinking, and tobacco use in lead contaminated areas.
Require employees to wash their hands and face before eating, drinking, or using any tobacco. They should wash up at the start of breaks, before lunch and before leaving for the day.

An occupational medicine physician can help you establish a medical monitoring program for your employees.
Blood lead levels are an accurate indication of how effective your exposure controls are.

Other sources of information

SHARP Publication "Working with lead: How to protect workers' health" can be obtained by calling 1-888-667-4277 or by visiting our web site at *www.wa.gov/lni/sharp.*

If you have any questions about lead regulations, you can call your local L&I office and ask to speak to an Industrial Hygiene Consultant. Their telephone number is listed in the "Government Pages" of your local telephone directory. These consultants provide a confidential, free service. You can also find more information by visiting L&I's web site: *www.wa.gov/lni*.

This document is adapted from "Point Blank: lead hazards at indoor firing ranges" produced by the Occupational Lead Poisoning Prevention Program of the California Department of Health Services April 1996